

Appl. No.: 09/434,282
Amdt. dated August 12, 2003
Reply to Office Action of March 12, 2003

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)
11. (Currently Amended): An apparatus according to claim 18, wherein said apparatus does not have a treatment zone (7) in fluid communication with said first discharge line (3) and said hydrotreatment zone (5), and said apparatus further comprises comprising a selective diene hydrogenation zone located between said fractionation column (1) and said hydrotreatment zone (5), said selective diene hydrogenation zone comprising a gasoline inlet line in fluid communication with said first discharge line (3) for introducing a first gasoline

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cut, and a dedienized first gasoline cut outlet line in fluid communication with said gasoline cut inlet line (6).

12. (Currently Amended): An apparatus according to claim 18, further comprising a hydrotreating zone (15) for hydrotreating a second gasoline cut, said hydrotreating zone (15) having a gasoline cut inlet line which is in fluid communication with said second discharge line (4) for introducing said a second gasoline cut from said fractionation column (1), a first hydrotreated cut outlet line (16), and a hydrogen supply line (17) connected to said second discharge gasoline cut inlet line (4) or said hydrotreating zone (15), and a stripping column (18) having a hydrotreated cut inlet line in fluid communication with said first hydrotreated cut outlet line, an H₂S outlet line (19), and a second hydrotreated cut outlet line (20).

13. (Canceled)

14. (Canceled)

15. (Currently Amended): An apparatus according to claim 25 ~~13~~, further comprising a selective diene hydrogenation zone located between said fractionation column (1) and said hydrotreatment zone (5), said selective diene hydrogenation zone comprising a gasoline inlet line in fluid communication with said first discharge line (3) for introducing a first gasoline cut, and a dedienized first gasoline cut outlet line in fluid communication with said gasoline cut inlet line (6).

16. (Currently Amended): An apparatus according to claim 11, further comprising a hydrotreating zone (15) for hydrotreating a second gasoline cut, said hydrotreating zone (15) having a gasoline cut inlet line which is in fluid communication with said second discharge line (4) for introducing said second gasoline cut from said fractionation column (1), a first hydrotreated cut outlet line (16), and a hydrogen supply line (17) connected to said second discharge gasoline cut inlet line (4) or said hydrotreating zone (15), and a stripping column (18) having a hydrotreated cut inlet line in fluid communication with said first hydrotreated

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cut outlet line, an H₂S outlet line (19), and a second hydrotreated cut outlet line (20).

17. (Canceled)

18. (Currently Amended): An apparatus for production of gasoline with reduced ~~reduce~~ sulphur content from a gasoline, comprising a fractionation column (1) having a gas inlet line (2) for introducing gasoline into said fractionation column, a first discharge line (3) for removing a first gasoline cut from an upper portion of said fractionation column, and a second discharge line (4) for removing a second gasoline cut from a lower portion of said fractionation column;

a hydrotreatment zone (5) comprising a catalytic bed, a gasoline cut inlet line (6) for introducing said a first gasoline cut, said gasoline cut inlet line (6) being in fluid communication with ~~either~~ said first discharge line (3) of said fractionation column (1) ~~or with a treatment zone (7) containing a palladium catalyst, said treatment zone (7) being positioned between said first discharge line and said hydrotreatment zone,~~ said hydrotreatment zone (5) also comprising a hydrotreated effluent outlet line (8);

a stripping zone (9) comprising a hydrotreated gas inlet in fluid communication with said hydrotreated effluent outlet line (8) of said hydrotreatment zone (5), an H₂S outlet line (10), and a stripped gasoline outlet line (11); and said apparatus also comprising at least one of the following:

a sweetening zone (12) comprising a gas inlet in fluid communication with said stripped gas outlet line (11) and with an oxidizing agent supply line (14) for introducing oxidizing agent to said sweetening zone and a stripped and sweetened gasoline outlet line connected to said sweetening zone (12); or

a treatment zone (7), said treatment zone (7) being in fluid communication with said first discharge line (3) and said hydrotreatment zone (5), said treatment zone (7) having a gas cut inlet connected to said first discharge line (3) of said fractionation column (1), a treated gasoline cut outlet line, and at least one catalyst bed containing 0.1-1% of palladium deposited on a support; and

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19. (Previously Added): An apparatus according to claim 18, wherein said catalytic bed in said hydrotreatment zone (5) contains a catalyst having at least one group VIII metal, at least one group VI metal, or a combination thereof.

20. (Previously Added): An apparatus according to claim 11, wherein said selective diene hydrogenation zone contains a catalyst comprising at least one group VIII metal and a support.

21. (Currently Amended): An apparatus according to claim 20, wherein said catalyst of said selective diene hydrogenation zone comprises 0.1-1% of palladium deposited on said a support.

22. (Previously Added): An apparatus according to claim 21, wherein said catalyst of said selected diene hydrogenation zone further contains 1-20% by weight nickel or contains gold in an amount whereby the Au/Pd weight ratio is 0.1-1.

23. (Currently Amended): An apparatus according to claim 11, wherein said selective diene hydrogenation zone contains a first catalyst zone ~~bed~~ and a second catalyst zone ~~bed~~, wherein said first catalyst zone is in fluid communication with the gasoline ~~cut~~ inlet line, and said second catalyst zone is in fluid communication with said first catalyst zone and in fluid communication with said dedienized first gasoline cut outlet line.

24. (Previously Added): An apparatus according to claim 23, wherein said first catalyst zone is at most 75 volume % of the total volume of said first catalyst zone of said second catalyst zone.

Please add the following new claims:

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--25. (New): An apparatus according to claim 18, wherein said apparatus comprises said sweetening zone (12), but does not comprise said treatment zone (7).

26. (New) An apparatus according to claim 18, wherein said apparatus comprises said treatment zone (7), but does not comprise said sweetening zone (12).

27. (New) An apparatus according to claim 18, wherein said apparatus comprises both said sweetening zone (12) and said treatment zone (7).

28. (New) An apparatus according to claim 18, wherein the first discharge line (3) is directly connected to the hydrotreatment zone (5).

29. (New) An apparatus for production of gasoline with reduced sulphur content from a gasoline, comprising a fractionation column (1) having a gas inlet line (2) for introducing gasoline into said fractionation column, a first discharge line (3) for removing a first gasoline cut from an upper portion of said fractionation column, and a second discharge line (4) for removing a second gasoline cut from a lower portion of said fractionation column; a hydrotreatment zone (5) comprising a catalytic bed, a gasoline cut inlet line (6) for introducing said first gasoline cut, said gasoline cut inlet line (6) being in fluid communication with said first discharge line (3) of said fractionation column (1), said hydrotreatment zone (5) also comprising a hydrotreated effluent outlet line (8);

a stripping zone (9) comprising a hydrotreated gas inlet in fluid communication with said hydrotreated effluent outlet line (8) of said hydrotreatment zone (5), an H₂S outlet line (10), and a stripped gasoline outlet line (11); and said apparatus also comprising at least one of the following:

a sweetening zone (12) comprising a gas inlet in fluid communication with said stripped gas outlet line (11) and with an oxidizing agent supply line (14) for introducing oxidizing agent to said sweetening zone and a stripped and sweetened gasoline outlet line

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connected to said sweetening zone (12); or

a treatment zone (7), said treatment zone (7) being in fluid communication with said first discharge line (3) and said hydrotreatment zone (5), and the treated gasoline cut outlet line is directly connected to the gasoline cut inlet line (6), said treatment zone (7) having a gas cut inlet connected to said first discharge line (3) of said fractionation column (1), a treated gasoline cut outlet line, and at least one catalyst bed containing 0.1-1% of palladium deposited on a support.

30. (New) An apparatus according to claim 18, wherein the gasoline cut inlet line (6) is adapted to receive the entire amount of the first gasoline cut from the upper portion of the fractionation column.--